

HISTORIA MATHEMATICA 1 (1974), 351-386

## ABSTRACTS

The purpose of the abstracts is to give sufficient information about the subject matter of each publication to enable readers to decide whether to read it. No review or evaluation is intended. Printing is arranged so that individual entries may be cut or mounted for filing in a five-by-three inch system. We hope to publish annual and cumulative subject indices, using a systematic vocabulary that may differ from the indexing terms, chosen at present without vocabulary control.

Readers are invited to send reprints, autoabstracts, corrections, additions, and notices of publications that have been overlooked. Be sure to include complete bibliographic information. We need volunteers willing to cover one or more journals for this department.

MR 46 # 3255 means that the item is numbered 3255 in volume 46 of Mathematical Reviews. Abbreviations of journal titles follow May's Bibliography (University of Toronto Press, 1973).

USISKIN, Zalman 1974 Transformations in high school geometry before 1970 *The Mathematics Teacher* 67, 353-360 SECONDARY EDUCATION. TEXTBOOKS. A careful analysis of the use of TRANSFORMATIONAL GEOMETRY from 1874 until 1970 in the United States and European countries. Many primary sources quoted. Extensive notes and references. (J.K. Bidwell)

MADISON SftP 1974 The struggle against army math *Science for the People* 6(1), 24-35 MILITARY APPLICATIONS. MATHEMATICS POLICY. SOCIOLOGY OF MATHEMATICS. U.S.A. Three parts: A. "The trial of KARL ARMSTRONG." An account of the arrest and mitigation hearing of the bomber of the ARMY MATHEMATICS RESEARCH CENTER at the UNIVERSITY OF WISCONSIN. B. "Exposing military math." Based on *The AMRC Papers*. C. "The AMRC Papers: Excerpts." (1973, SESPA, 9 Walden St., Jamaica Plain, Mass. 02130).

CLARK, R.S. 1974 Professor E.T. Davies *Utilitas Mathematica* 5, 4-13 CARTAN GEOMETRY. DIFFERENTIAL GEOMETRY. FINSLER GEOMETRY. TENSOR CALCULUS. An obituary notice of E.T. DAVIES with PORTRAIT and brief bibliography. "The substance of this notice will appear in the *Bulletin of the London Mathematical Society* together with a complete bibliography." (R.S.D. Thomas)

VAN DER WAERDEN, B L 1974 *Science Awakening II. The Birth of Astronomy* With contributions by Peter Huber. Leyden (Noordhoff) and New York (Oxford) 347 p ANCIENT MATHEMATICS. ASTRONOMY. BABYLONIAN ASTRONOMY. EGYPTIAN ASTRONOMY. PERSIAN ASTRONOMY. A "completely revised text" rather than merely a translation of the original German (*Die Anfänge der Astronomie*, Groningen 1965, Basel 1968). *Science Awakening I* (Dutch 1950, English 1954, German 1956, 1965) dealt with mathematics, and suggests the need for another volume by describing mechanics as the third line of development essential to an understanding of modern science. Emphasizes the interrelations of astronomy and astrology. 31 plates.

ANON 1974 Award of the 1974 Chauvenet Prize to Peter H. Lax *Amer Math Monthly* 81, 113-114 AWARDS. CHAUVENET PRIZE. P LAX. NUMERICAL MATHEMATICS. Biographical note, bibliography of past awards (1964-1965, 1967-1968, 1970-1973). (H S Tropp)

KENNEDY, Hubert C 1974 *Giuseppe Peano* Basel (Birkhäuser Verlag) 31 p Beiheft 14 of *Elemente der Mathematik*. A biography of G PEANO with a fine PORTRAIT and a letter (with facsimile) to BERTRAND RUSSELL.

MICHALOS, Alex C 1974 *Philosophical Problems of Science and Technology* Boston (Allyn & Bacon) 623 p ANTHOLOGIES. HISTORICAL THEORY. PHILOSOPHY OF SCIENCE. 27 reprints of articles and parts of books, including H R Hanson (1961) "Is there a logic of scientific discovery?", a comment (1961) on the previous paper by P K Feyerabend, K R Popper (1962) "Truth, rationality, and the growth of scientific knowledge," and Anatol Rapoport (1958) "Various means of 'theory'" (in which appear the only references to mathematics).

- MAY, Kenneth O 1974 Should we be mathematicians, historians of science, historians, or generalists? HM 1, 127-128 HISTORIOGRAPHY. SOCIOLOGY OF SCIENCE.
- DRAKE, Stillman 1974 Mathematics and discovery in Galileo's physics HM 1, 129-150 FREE FALL. GALILEO. HEURISTIC. MATHEMATICS AND PHYSICS. PROPORTION THEORY.
- HOGAN, Edward R 1974 The beginnings of mathematics in a howling wilderness HM 1, 151-166 NORTH AMERICA. NEW ENGLAND. XVIII.
- SWETZ, Frank J 1974 The introduction of mathematics in higher education in China, 1865-1887 HM 1, 167-179 CHINA. HIGHER EDUCATION. LI CHAN-LAN. MOTIVATION. TSENG KUO-FAN. ALEXANDER WYLIE. XIX.
- BROCK, W H & R M MACLEOD 1974 The life and journals of Thomas Archer Hirst, FRS (1820-1892) (A Project) HM 1, 181-183 THOMAS ARCHER HIRST.
- KING, David A 1974 Smithsonian Institution project in medieval Islamic astronomy HM 1, 183-184 MEDIEVAL ISLAMIC ASTRONOMY. SMITHSONIAN INSTITUTION.
- GRATTAN-GUINNESS, I 1974 Jourdain's copy of Whitehead and Russell's Principis Mathematica HM 1, 187 PHILIP JOURDAIN. B RUSSELL. A N WHITEHEAD.

- OSOFSKY, Barbara L 1974 The subscript of  $\mathcal{X}_n$ , projective dimension, and the vanishing of  $\lim^{(n)}$ . *Bull Amer Math Soc* 80, 8-26 ALGEBRAIC TOPOLOGY. BIBLIOGRAPHY. CONTINUUM HYPOTHESIS. DERIVED FUNCTORS (EXT AND TOR). PROJECTIVE DIMENSION. PROJECTIVE MODULES. An historical sketch of how CARDINALITY questions and manipulations became intimately connected with HOMOLOGICAL ALGEBRA. (D E Kullman)
- GARDNER, W D 1974 The computer: born in a tavern *Washington Post*, 3 January, B1-B2 J V ATANASOFF. ATANASOFF-BERRY COMPUTER. C BERRY. COMPUTERS. J P ECKERT. ELECTRONIC DIGITAL COMPUTER. ENIAC. H-BOMB. HONEYWELL CORP. IBM. IOWA STATE COLLEGE. JUDGE E R LARSON. J MAUCHLY. PATENT LITIGATION. PRIORITY. SPERRY-RAND CORP. E TELLER. Court ruling invalidating the ENIAC patent's status as origin of first automatic electronic digital computer. Photographs. (H S Tropp)
- ANDERSON, A D 1974 Award for distinguished service to Professor R.H. Bing *American Mathematical Monthly* 81, 111-113 AWARDS. R H BING. TOPOLOGY. Biographical note. PORTRAIT. (H S Tropp)
- FERGUSON, Rolfe P 1974 On Fermat's last theorem *Journal of Undergraduate Mathematics* 6(1), 1-14 FERMAT LAST THEOREM. Selective chronology.
- OSSEN, Lynn M 1974 *Women in Mathematics* Cambridge, Mass. (MIT Press) 185 p M G AGNESI. MARQUISE DU CHATELET. SOPHIE GERMAIN. CAROLINE HERSCHEL. HYPATIA. SONYA C-K KOVALEVSKY. EMMY NOETHER. MARY F SOMMERVILLE. SOCIOLOGY OF MATHEMATICS. WOMEN ASTRONOMERS. Biographies of leading WOMEN mathematicians, brief comments on other women in mathematics and science, general discussion of SEXISM in mathematics, bibliography (about 75 items), portraits.

STEVENSON, M G 1973 Bell Labs: A pioneer in computer technology. I. *Bell Laboratories Record* 51, 344-351 ANALOG COMPUTERS. E ANDREWS. AUTOMATIC MESSAGE ACCOUNTING. BALLISTIC COMPUTER. J BARDEEN. BELL LABS. COMPLEX NUMBER CALCULATOR. COMPUTERS. ERROR CHECKING. ERROR DETECTION. J FELKER. T FRY. GYPSY. A HORTON. ISOGRAPH. LEPRECHAUN. C LOVELL. MAGNETIC RECORDING HEADS. MARK 22. D PARKINSON. RELAY CIRCUITRY. RELAY COMPUTERS. RELAY INTERPOLATOR. W SHOCKLEY. G STIBITZ. TRANSISTORIZED DIGITAL COMPUTERS. TRADIC. S WILLIAMS. Development and contributions to information processing at Bell Laboratories from the 1930's to the mid-1950's. Photographs. (H S Tropp)

STEVENSON, M G 1974 Bell Labs: A pioneer in computer technology. II. *Bell Laboratories Record* 52, 12-20 AUTOMATIC PROGRAMMING SYSTEMS. BELL LABS. BLODI. COMPUTER GRAPHICS. COMPUTERS. J COOLEY. B CRANE. D EASTWOOD. ELECTRONIC SWITCHING SYSTEMS. ERROR CORRECTION. J GITHENS. R GRISWOLD. R HAMMING. J KAISER. MACROPROGRAMMING. M MCILROY. MINICOMPUTER TIME-SHARING. MULTICS. C PEASE. PEPE. SNOBOL 4. SOFTWARE. SWAP. J TUKEY. UNIX. V VYSSOTSKY. V WOLONTIS. Software developments and applications, Bell Laboratories from the mid-1950's to the end of the 1960's. Photographs. (H S Tropp)

STEVENSON, M G 1974 Bell Labs: A pioneer in computer technology. III. *Bell Laboratories Record* 52, 55-63 ALTRAN. COMPUTER-MADE MOVIES. COMPUTERS. G DODDINGTON. ESSFLO. J FLANAGAN. FLOWTRACE. R KETCHLEDGE. J KRUSKAL. R LOOMIS. S MORGAN. MULTIDIMENSIONAL SCALING. A ROSENBERG. SATELLITE SIMULATION. P SHERMAN. F SINDEN. SPEECH SIMULATION. STEREOPSIS. VOICE RECOGNITION. SYMASK. E ZAJAC. Computer application to information processing at Bell Laboratories from the early 1960's to the present. Illustrations. (H S Tropp)

- TURNER, A J 1973 Mathematical instruments and the education of gentlemen *Annals of Science* 30, 51-88 JOHN AUBREY. XVII. MATHEMATICAL INSTRUMENTS of the seventeenth century based to a large extent on John Aubrey's *Idea of Education of Young Gentlemen*. (C R Fletcher)
- KNIESS, H Eugene 1973 First electronics research lab rediscovered *NCR Dayton* 6 (April 11) COMPUTERS. NATIONAL CASH REGISTER CO. The lab is that of JOSEPH R DESCH, which from 1938 to 1953 participated in the shift from mechanical to electronic devices.
- BAUM, Robert J, Editor 1973 *Philosophy and Mathematics From Plato to the Present* San Francisco (Freeman, Cooper), 324 p ANTHOLOGIES. NATURE OF MATHEMATICS. PHILOSOPHY OF MATHEMATICS. Excerpts on traditional philosophic issues from PLATO, ARISTOTLE, R DESCARTES, T HOBBS, J LOCKE, I NEWTON, G W LEIBNIZ, G BERKELEY, D HUME, I KANT, J S MILL, G FREGE, ERIK STENIUS, SIDNEY AXINN, MAX BLACK, with elementary commentary and selected BIBLIOGRAPHIES.
- DEMIDOV, S S 1973 Shkola po istorii matematiki i mekhaniki XIX-XX vekov (Conference on the history of mathematics and mechanics in the XIX - XX centuries) MEETINGS. Reports the Tartu meeting 3-10 July 1973. A briefer account appears in *HM* 1, 92-93.
- YUSHKEVICH, A P 1973 J. A. da Cunha et les fondements de l'analyse infinitésimale (J. A. da Cunha and the foundations of calculus) *Revue d'histoire des sciences* 26(1), 3-22 BINOMIAL EXPANSION. CALCULUS. J A DA CUNHA (1744-1787). DIFFERENTIAL. EXPONENTIAL FUNCTION. In da Cunha's *Principios mathematicos* (Lisbon 1790; French edition, Bordeaux, 1811) are anticipations of later rigor, a new theory of the exponential function, an ingenious proof of the binomial expansion, and a precise definition of the differential along the lines attributed to Cauchy.

- SLOANE, N J A 1973 *A Handbook of Integer Sequences* New York (Academic Press) 206 p BIBLIOGRAPHIES. INDEXES. A list of 2372 SEQUENCES OF POSITIVE INTEGERS lexicographically ordered by their first few terms, described by short phrases, accompanied by references to the literature, indexed by name and topics, and preceded by 32 pages of introductory material, including an essay on "how to handle a strange sequence."
- BEHNKE, Heinrich 1973 Rückblick auf die Geschichte der Mathematischen Annalen *Mathematischen Annalen* 200, i-vii JOURNALS. MATHEMATISCHE ANNALEN.
- GOLDSTINE, Herman H 1973 The beginnings of scientific computation *Scripta Mathematica* 29, 379-389 GREEK MATHEMATICS. HIPPARCHUS. MENELAUS. NUMERICAL METHODS. PURE AND APPLIED MATHEMATICS. PTOLEMY. TRIGONOMETRY.
- NACHBIN, Leopoldo 1973 Recent developments in infinite dimensional holomorphy *Bull Amer Math Soc* 79, 625-640 BIBLIOGRAPHY. COMPLEX BANACH SPACES. CONVOLUTION OPERATORS. HOLOMORPHIC MAPPINGS. LOCALLY CONVEX SPACES. UNIFORM HOLOMORPHY. Describes current progress in the study of holomorphy in infinite dimensional spaces. Lists 171 references to recent work reflecting some of the trends. (D E Kullman)
- LOVELL, Michael C 1973 The production of economic literature: An interpretation *Journal of Economic Literature* 11, 27-55 GROWTH. HISTORICAL THEORY. QUANTITATIVE METHODS IN HISTORY. Of methodological interest.
- BONEV, N 1973 Nicolaus Copernicus *Physico-Mathematical Journal, Bulgarian Academy of Sciences* 16(49), 149-158 N COPERNICUS. Anniversary article.

COHEN, Leon W. 1973 James Waddell Alexander 1888-1971  
*Bull Amer Math Soc* 79, 900-903 J W ALEXANDER  
(BIOGRAPHY, BIBLIOGRAPHY). ALGEBRAIC TOPOLOGY.  
(D E Kullman)

WILDER, Raymond L 1973 Recollections and reflections  
*Math Magazine* 46, 177-182 ANECDOTES. MATHEMATICS  
EDUCATION. UNITED STATES. XX. Personal reminiscences  
of an American mathematician concerning mathematical  
progress in the twentieth century (D E Kullman)

HONSBERGER, Ross 1973 *Mathematical Gems from  
Elementary Combinatorics, Number Theory, and Geometry*.  
Number 1 of the Dolciani Mathematical Expositions  
(The Mathematical Association of America) 187 p  
\$8.00 (\$4.00 MAA members) COMBINATORICS. CONVEX  
FIGURES. GRAPH THEORY. HAMILTONIAN CIRCUITS.  
LATTICE POINTS. MORLEY THEOREM. NUMBER THEORY.  
LOUIS POSA. PROBLEMS. TRIANGLE GEOMETRY. Thirteen  
RECREATIONAL MATHEMATICS essays sprinkled with  
historical comments. Contains enrichment material,  
references at the ends of chapters, and solutions to  
selected exercises. (J H Baumwell)

*Materialien zur Analyse der Berufspraxis des  
Mathematikers* 1973 Heft 10 Projektgruppe  
Mathematik in der Industriegesellschaft, Fakultät  
für Mathematik, Universität Bielefeld EDUCATION.  
SOCIOLOGY OF MATHEMATICS. According to the preface  
to Heft 3 (1971), these studies of the work of  
mathematicians in relation to educational reform  
date from 1969.

KNOBLOCH, Eberhard 1973 Zur Überlieferungsgeschichte  
des Bachetschen Gewichtsproblems (On the historical  
tradition of the Bachet weight problem) *Sudhoffs  
Archiv* 57(2)(2 quartal), 142-151 G W LEIBNIZ.  
PARTITIONS OF INTEGERS. SUMS OF POWERS OF INTEGERS.  
WEIGHT PROBLEMS. The paper reviews and corrects  
the traditional history of partitions prior to  
Euler, beginning with the work of Fibonacci.



WEIL, A 1973 Review of 'The Mathematical Career of Pierre de Fermat' by M. S. Mahoney *Bull Amer Math Soc* 79, 1138-1149 BOOK REVIEW. P. FERMAT. ANALYTIC GEOMETRY. CALCULUS. NUMBER THEORY. XVII. An attack on M S Mahoney's recent book (Princeton U Press, 1973). Besides calling into question Mahoney's abilities as an author, historian, and mathematician, Weil expounds some of his own views on the work of Fermat in analytic geometry, calculus, and number theory. (D E Kullman)

NAKAYAMA, Shigeru & SIVIN, Nathan, Editors 1973 *Chinese Science. Explorations of an Ancient Tradition* Cambridge, Mass. (MIT Press) 370 p US \$12.50 CHINESE MATHEMATICS. CHINESE SCIENCE. JOSEPH NEEDHAM. OPTICS. This collection, compiled in honor of the 70th birthday of Joseph Needham, whose portrait precedes the title page, is Volume II of the MIT East Asian Science Series edited by Sivin. The first part begins with an essay by Needham in which he discusses the motivation of his work. The next three papers (by Derek J de Solla Price, Shigeru Nakayama, and A C Graham) discuss Needham's work and the controversies related to it. The remaining six essays are examples of contemporary research on the history of Chinese science and include a paper on Chinese astronomy by Kiyosi Yabuuti and one on Mohist optics (ca. 300 BC) by A C Graham and Nathan Sivin, a substantial bibliography on Mohist logic, science, and mathematics. The book closes with a bibliography of selected and introductory materials on traditional Chinese science in western languages and with a detailed index (a welcome feature not always included in collections!).

MONNA, A F 1973 Experiences with lectures on the history of mathematics in Utrecht *Amer. Math. Monthly* 80(7), 803-806 EDUCATION IN THE HISTORY OF MATHEMATICS. HISTORY OF MATHEMATICS IN THE MATHEMATICS CURRICULUM. The author describes cycles of lectures, addressed to all students of mathematics by mathematical specialists on the history and content of selected topics.

MALYI, I G 1973 *Voprosy statistiki v trudakh Fridrika Engelsa* (Questions of STATISTICS in the work of FREDERICK ENGELS) A discussion of the work and ideas of Engels and other Marxists on methods of DESCRIPTIVE STATISTICS, SOCIAL STATISTICS, PHILOSOPHY OF MATHEMATICS, MATHEMATICS IN THE SOCIAL SCIENCES, and the LAW OF LARGE NUMBERS.

ANON 1973 A Adrian Albert (1905-1972) *Scripta Mathematica* 29, n.p. PORTRAIT and 3-page OBITUARY. The issue is dedicated to him.

KNIESS, H Eugene 1973 Three NCR pioneers cited by Smithsonian for electronics work *NCR Dayton* 6(3)(April 11) R DESCH. D E ECKDAHL. NATIONAL CASH REGISTER CO. ROBERT MUMMA.

SCHAAF, William L 1973 *A Bibliography of Recreational Mathematics*. Vol. 3 (National Council of Teachers of Mathematics) 175 p BIBLIOGRAPHIES. RECREATIONS. Updating and completions of previous volumes (I: 1954 with fourth edition 1970. II: 1970), new sections on classroom games and recreations, a chronological synopsis of Martin Gardner's *Scientific American* column, and a 57-page glossary.

KENNEDY, E S 1973 *A Commentary Upon Biruni's Kitāb Tahdīd al-Amākin, an 11th Century Treatise on Mathematical Geography* Beirut (American University of Beirut) 270 p ARAB MATHEMATICS. ASTRONOMY. AL-BIRUNI. GEODESY. MEDIEVAL MATHEMATICS. The commentary is based on and follows the critical edition of P G Bulgakov (also his Russian translation) and assumes that the reader has available one of these or the English translation by Jamil Ali. It includes reformulations in modern mathematical symbolism, redrawn figures, redone calculations, biographical information, paraphrases, explanations, complementary information, etc. BIBLIOGRAPHY (13 pages) and detailed index.

RYBNIKOV, K A 1973 Nekotorye metodologicheskie problemy matematiki v svete leninskikh idei (Some methodological problems of mathematics in the light of Leninist ideas) *Istoriya i metodologiya estestvennykh nauk* 14, 1-8 IDEALISM. LENIN. NATURE OF MATHEMATICS. PHILOSOPHY OF MATHEMATICS.

KISELEVA, N A 1973 O nekotorykh zakonomernostykh razvitiya matematicheskogo poznaniya (On some laws of development of mathematical knowledge) *Ist Met EN* 14, 9-21 HISTORICAL THEORY. PURE AND APPLIED MATHEMATICS.

SLEZKIN, N A 1973 F. Engels i sovremennaya mekhanika (F. ENGELS and CONTEMPORARY MECHANICS) *Ist Met EN* 14, 22-32

TYULINA, I A 1973 K istorii spora o mere dvizheniya. K. 150-letiyu so dnya rozhdeniy F. Engelsa. (Toward a history of the controversy on the measure of MOTION) *Ist Met EN* 14, 33-37 KINETIC ENERGY. MOMENTUM.

KOSMODEMYANSKII, A A 1973 Obraz idealnogo ychenogo-myslitelya po vzglyadam K. E. Tsiolkovskogo (The image of the ideal scientist-scholar according to the views of K E TSIOLKOVSKII) *Ist Met EN* 14, 38-48 A EINSTEIN. HEURISTIC. HISTORICAL THEORY. PSYCHOLOGY OF SCIENCE. SOCIOLOGY OF SCIENCE.

BASHMAKOVA, I G 1973 O ponyatii chisla v matematike pervykh vekov nashei ery (On the concept of number in the first centuries of our era) *Ist Met EN* 14, 49-59 ARCHIMEDES. DIOPHANTUS. EUCLID. GREEK MATHEMATICS. NUMBER. PTOLEMY. RATIONAL NUMBERS.

- BUTSEL, M K 1973 Ratsionalnye chisla i kvadratichnye irratsionalnosti v 'Nachalakh' Evklida (RATIONAL NUMBERS and QUADRATIC IRRATIONALS in Euclid's ELEMENTS) *Ist Met EN* 14, 60-64 ALGEBRAIC NUMBERS. EUCLID. IRRATIONAL NUMBERS.
- GOUSKA, Yan 1973 Zamechaniya o novom podkhode k osnovaniyam analiza v pervoi polovine XIX veka (Observations on a new approach to the FOUNDATIONS OF ANALYSIS in the first half of the XIX century) *Ist Met EN* 14, 65-73 CONTINUITY. LIMITS. INFINITESIMALS. The work of B BOLZANO, A CAUCHY, and many others.
- DEMIDOV, S S 1973 K istorii aksiomaticheskogo metoda (Toward a history of the axiomatic method) *Ist Met EN* 14, 74-91 AXIOMATICS. A sketch from the Pythagoreans to Bourbaki.
- DOROFEEVA, A V 1973 Razvitie teorii integralnykh uravnenii do rabot Gilberta (Development of the theory of INTEGRAL EQUATIONS to the work of Hilbert) *Ist Met EN* 14, 92-105
- DRAGALIN, A G 1973 K intuitsionistskoi teorii modelei (Toward an intuitionist theory of MODELS) *Ist Met EN* 14, 106-126 INTUITIONIST LOGIC.
- KROTKOVA, N G 1973 Obobshchennye kompleksnye chisla u R.R. Gamiltona i De-Morgana (The generalizations of COMPLEX NUMBERS by W R HAMILTON and A DE MORGAN) *Ist Met EN* 14, 127-130 ALGEBRA. HYPERCOMPLEX NUMBERS. GREAT BRITAIN. LINEAR ALGEBRA. QUATERNIONS. XIX.
- KUZNICHEV, A S 1973 O predmete i metodakh kombinatornoi logika (On the subject and methods of COMBINATORIAL LOGIC) *Ist Met EN* 14, 131-141

LYSENKO, V I 1973 Matematicheskie raboty G.V. Krafta (The mathematical work of G.V. Krafft) *Ist Met EN* 14, 142-152 G V KRAFFT (1701-1754) was a mathematician and physicist at the PETERSBURG ACADEMY OF SCIENCE. Bibliography.

MEDVEDEV, F A 1973 O ponyatii funktsii u Nyutona (On Newton's concept of FUNCTION) *Ist Met EN* 14, 153-158 I NEWTON.

ONDAR, Kh O 1973 K voprosy o pervykh prilozheniyakh teorii veroyatnostei k meditsine (On the question of the first applications of PROBABILITY to MEDICINE) *Ist Met EN* 14, 159-166 A YU DAVIDOV. P D ENKO. K V TOVSTITSKII. M K ZENETS. P A PESKOV. MEDICAL STATISTICS.

PETROVA, S S 1973 Iz istorii analiticheskikh dokazatelstv osnovnoi teoremy elgebry (From the history of the analytic proofs of the FUNDAMENTAL THEOREM OF ALGEBRA) *Ist Met EN* 14, 167-172 Analytic proofs are those depending on properties of polynomials as analytic function, in contrast to algebraic proofs resting on the theory of symmetric functions.

SIMONOV, R A 1973 Pismennye materialy VIII-XI vv. kak istochniki izucheniya matematicheskoi kultury slavyan (Manuscript materials of the VIII-XI centuries as sources for the study of the mathematical culture of the Slavs) *Ist Met EN* 14, 173-180. ARCHIVES. MANUSCRIPTS. MEDIEVAL MATHEMATICS. SLAVIC MATHEMATICS. Bibliography (78 items).

SLAVUTIN, E I 1973 Raboty Eulera ob ellipticheskikh integralakh (The work of EULER on ELLIPTIC INTEGRALS) *Ist Met EN* 14, 181-189

CHERNOVA, M Ch 1973 Algebra M. Shtifelya (The ALBEGRA of MICHAEL STIFEL) *Ist Met EN* 14, 190-205

SHKOLENOK, G A 1973 Krivye 3-go poryadka i ikh klassifikatsiya v rannikh robatakh Isaaka Nyutona (1664-1668 gg) (CUBIC CURVES and their classification in the early work of ISAAC NEWTON) *Ist Met EN* 14, 206-224

KUDRYASHOVA, L V & L A STEPANOVA 1973 O tochnykh resheniyakh uravnenii dvizheniya tyazhelogo tverdogo tela s nepodvizhnoi tochkoi (On the exact solutions of the EQUATIONS OF MOTION of a heavy rigid body about a fixed point) *Ist Met EN* 14, 225-241 KINETICS. MOTION WITH FIXED POINT. Survey of results with 103-item bibliography.

KUDRYASHOVA, L V & L A STEPANOVA 1973 O nekotorykh rabotakh posvyashchennykh zadache dvizheniya tverdogo tela s negolonomnoi svyazyu (On some work related to the motion of a rigid body with nonholonomic relations) *Ist Met EN* 14, 242-247 NONHOLONOMIC MOTION WITH FIXED POINT. Survey.

NETREBKO, V P & B P KISHKIN 1973 O rabotakh M.M. Filonenko-Borodicha po teorii uprugosti i prochnosti (The work of M M FILONEKO-BORODICH on the theory of ELASTICITY and STRENGTH OF MATERIALS) *Ist Met EN* 14, 248-261

FLOUD, Roderick 1973 *An Introduction to Quantitative Methods for Historians* Princeton, N.J. (Princeton University Press) 220 p Brief discussion of HISTORICAL THEORY and MODELS IN HISTORY. Descriptive and inferential STATISTICAL METHODS IN HISTORY.

- BIERMANN, K-R 1973 Die Briefe von Martin Bartels an C. F. Gauss *NTM* 10(1), 5-22 These letters, here first published, offer negative evidence on the groundless tradition that C. F. GAUSS influenced N. I. LOBACHEVSKII's discovery of NON-EUCLIDEAN GEOMETRY via MARTIN BARTELS.
- SPENCER, Donald D 1973 *Computer Dictionary* Ormand Beach, Florida (Abacus Computer Corp), 57 p COMPUTERS. DICTIONARIES. A reprint of the first 57 pages of the author's 1968 *The Computer Programmer's Dictionary and Handbook* (Blaisdell) with some material replaced by drawings intended for decoration. The terms ("over 1200" compared with over 3000 in Anthony Chandor's 1970 *A Dictionary of Computers* (Penguin, 407 p)) are partly not in computer science (e.g. "absolute value" defined as "magnitude without regard to sign" and "probability theory" as "a measure of likelihood...") and partly non-mathematical (e.g. "ABA," the American Bankers Association).
- BROOKS, Harvey & Kenneth IVERSON & Robert ASHENHURST & Anthony OETTINGER & Jacquelin SILL 1973 *Memorial Ceremony for HOWARD HATHAWAY AIKEN (1900-1973) at Harvard University Memorial Church May 8, 1973.* (Mimeographed copies of the speeches.) COMPUTERS.
- OETTINGER, Anthony 1973 HOWARD AIKEN, retiring computer pioneer. *Communications of the ACM* 16, 298-299 COMPUTERS. Written before Aiken's death.
- GRIDGEMAN, N T 1973 John Napier and the history of logarithms *Scripta Mathematica* 29, 49-65 ABACUS. LOGARITHMS. JOHN NAPIER. A lecture given at the University of Ottawa commemoration of the 350th anniversary of Napier's death (1617).
- PELSENEER, Jean 1973 Le rôle des mathématiques dans le progrès scientifique *Science et Culture* 19(200), 2-5 ROLE OF MATHEMATICS.

- HALL, R S 1973 *About Mathematics* Englewood Cliffs (Prentice-Hall) MATHEMATICS TEXTBOOKS WITH HISTORICAL APPROACH. HISTORICAL POPULARIZATIONS. 270-page introduction to mathematics for liberal arts college students. Five parts: mathematics through Greek axiomatization, geometry, arithmetic, algebra, and calculus.
- AHO, A V, Editor 1973 *Currents in the Theory of COMPUTING* Englewood Cliffs (Prentice-Hall) 245 p CURRENT HISTORY. COMPUTER SCIENCE. A state-of-the-art survey of FORMAL LANGUAGE THEORY, COMPLEXITY OF ALGORITHMS, PROGRAM SCHEMATA, TREE AUTOMATA, and COMPILER DESIGN THEORY, with a 20-page bibliography.
- RAPHAEL, Brother L, FSC 1973 The shoemaker's knife *The Mathematics Teacher* 66, 319-323 ARCHIMEDES. LIBER ASSUMPTORUM. ARBELOS. A discussion of Propositions 4, 5, and 6 of Archimedes' *Liber assumptorum* (Book of Lemmas). Theorems and proofs are given in modern format.
- SHOEMAKER, Richard W 1973 PERFECT NUMBERS National Council of Teachers of Mathematics 28 p US \$1.00 An elementary exposition for teachers with a historical introduction, many historical references, and a short bibliography.
- MAY, K O & TROPP, H S 1973 Some algebraic equations do not have exactly  $n$  roots *The Mathematics Teacher* 66, 179-182 ALGEBRAIC EQUATIONS. A partly historical discussion of careless statements on the number of roots of algebraic equations.
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- GAIDUK, Y 1972 K istorii rasprostraneniya geometricheskikh idei Lobachevskogo v Pribaltike (deatelnost G S Semikolenova). (On the history of the diffusion of the geometrical ideas of Lobachevsky in the Pribaltic area (the work of G. S. Semikolenov, 1845-1912) *Iz istorii estestvoznaniya i tekhniki pribaltiki* 4, 95-103  
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This volume contains 144 pages of prefatory material, including discussions of philosophies of history, the history of science, the history of mathematics, mathematics today, a critique of previous biographical efforts and of their critics, and a selected bibliography, followed by 197 pages of brief biographies from A through D. Two further planned volumes will complete the alphabet of "working mathematicians" from antiquity to 1945, and will contain also a biographical dictionary of mathematicians from 1945 to 1960 and of historians of mathematics from antiquity to today. The author hopes to continue with contemporary mathematical biographical dictionaries at intervals. The brief, informed biographies are in some cases followed by bibliographies.
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- MARTIN, Robert L 1970 *The Paradox of the Liar* New Haven & London (Yale University Press) 1949 LIAR PARADOX. LOGICAL PARADOXES. Although most of this volume consists of philosophical analysis of the liar paradox, the editor's introduction, the first paper ("St. Paul's epistle to Titus" by Alan Ross Anderson), and the 14-page bibliography of modern sources are of historical interest.
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description and analysis of RAFAEL BOMBELLI (1572)  
L'Algebra and its influence on G W LEIBNIZ, with  
numerous references to the literature, a name index,  
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DOLAN, W W 1972 The ellipse in eighteenth century  
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